UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, D.C. 20460

OFFICE OF
PREVENTION, PESTICIDES
AND
TOXIC SUBSTANCES

27/APR/2001

MEMORANDUM

Subject:	Name of Pesticide Product:	Aim 2 EC
	EPA Reg. No. /File Symbol:	279-GEUR
	DP Barcode:	D273169
	Case No:	070063
	PC Code:	128712
From:	Eugenia McAndrew, Biologist	EM
	Technical Review Branch	
	Registration Division (7505C)	
To:	Dianne Morgan, PM Team 23	
	Herbicide Branch	
	Registration Division (7505C)	
Applicant:	FMC Corporation	
	Agricultural Products Group	
	P.O. Box 8	
	Princeton, NJ 08543	

FORMULATION FROM LABEL:

	Active Ingredient(s):	% by wt.
128712	Carfentrazone-ethyl	24.6
	Inert Ingredient(s):	75.4
	Total:	100.00%

ACTION REQUESTED: PM requests review of acute toxicity data for EPA File Symbol 279-GEUR, Aim 2 EC.

BACKGROUND: FMC Corporation has applied for registration of two new formulation products of carfentrazone-ethyl technical. The two new products are Aim 2EC, EPA File Symbol 279-GEUR, and Aim 2 EW, EPA File Symbol 279-GEUE. Both products contain approximately the same percent of carfentrazone-ethyl as the sole active ingredient and similar inert ingredients. FMC Corporation has submitted a six pack of acute toxicity studies conducted on Aim 2 EC in support of registration. MRID numbers assigned are 453143-02 to -07. The studies were conducted at FMC Corporation Toxicology Laboratory, Princeton, New Jersey. In a separate action, the registrant proposes to bridge this acute toxicity data to the other new product, Aim 2 EW.

RECOMMENDATIONS: The six studies have been reviewed and are classified as acceptable.

The acute toxicity profile for EPA File Symbol 279-GEUR, Aim 2 EC, is as follows:

acute oral toxicity	III	Acceptable	MRID 453143-02
acute dermal toxicity	III	Acceptable	MRID 453143-03
acute inhalation toxicity	IV	Acceptable	MRID 453143-04
primary eye irritation	III	Acceptable	MRID 453143-05
primary skin irritation	IV	Acceptable	MRID 453143-06
dermal sensitization	No	Acceptable	MRID 453143-07

Note to PM: The percent of the active ingredient on the label submitted for this product is incorrect. The registrant has faxed a corrected label and will also submit a hard copy through front end processing.

LABELING: Based on the toxicity profile above, the following are the precautionary and first aid statements for this product as obtained from the Label Review System.

ID #: 000279-03241 AIM 2EC

AGRICULTURAL USE REQUIREMENTS:

DIRECTIONS FOR USE:

For early entry to treated areas that is permitted under the Worker Protection Standard and that involves contact with anything that has been treated, such as plants, soil, or water, wear: coveralls over long-sleeved shirt and long pants, socks, shoes and chemical resistant gloves (such as Nitrile, Butyl, Neoprene, and/or Barrier Laminate).

INGREDIENT LABELING:

Contains Petroleum Distillate.

SIGNAL WORD: CAUTION

PRECAUTIONARY STATEMENTS:

Harmful if swallowed or absorbed through skin. Causes moderate eye irritation. Avoid contact with eyes, skin or clothing. Wear long-sleeved shirt and long pants, socks and shoes and chemical resistant gloves (such as Nitrile, Butyl, Neoprene, and/or Barrier Laminate).

STATEMENT OF PRACTICAL TREATMENT (SOPT):

IF SWALLOWED: Call a physician or Poison Control Center. Do not induce vomiting. Do not give anything by mouth to an unconscious person. Avoid alcohol.

IF ON SKIN OR CLOTHING: Take off contaminated clothing. Rinse skin immediately with plenty of water for 15-20 minutes. Call a poison control center or doctor for treatment advice.

IF IN EYES: Hold eye open and rinse slowly and gently with water for 15-20 minutes. Remove contact lenses, if present, after the first 5 minutes, then continue rinsing eye. Call a poison control center or doctor for treatment advice.

The proposed label must contain the following guidance:

Note to Physician: This product may pose an aspiration pneumonia hazard. Contains petroleum distillate.

USER SAFETY RECOMMENDATIONS:

Wash hands before eating, drinking, chewing gum, using tobacco or using the toilet.

DATA REVIEW FOR ACUTE ORAL TOXICITY TESTING (870.1100)

Product Manager: 23 **Reviewer:** Eugenia McAndrew

CITATION: Freeman, C. (1994) F8426 240 g/L EC; acute oral toxicity in rats. FMC Corporation Toxicology Laboratory, Princeton, New Jersey. Laboratory Report Number A94-4059. December 20, 1994. MRID 453143-02. Unpublished.

SPONSOR: FMC Corporation Agricultural Products Group, P.O. Box 8, Princeton, NJ 08543

EXECUTIVE SUMMARY: In an acute oral toxicity study, five young adult Sprague-Dawley CD rats/sex or five females only or five males only (Weight: 210-289 g males; 215-263 g females; Source: Charles River Laboratories) were given a single oral dose of F8426 240 g/L EC (23.2% purity; Reference No. PL94-471; clear liquid) at 7000 mg/kg (males only); 5000 and 4000 mg/kg (males and females) and 4500, 4200, 4100 mg/kg (females only). Animals were observed for clinical signs of toxicity and mortality for 14 days post dosing.

Oral LD_{50} Males = 4490 mg/kg (95% C.L. 2773-6206 mg/kg); Oral LD_{50} Females = 4077 mg/kg (95% C.L. 4005-4149 mg/kg); Oral LD_{50} Combined = 4235 mg/kg (95% C.L. 2968-5502 mg/kg) The LD_{50} calculations were performed using a modified Logit-Linear Regression Program written by Jim Gibbons, Texas Instruments Calculator Products Division.

F8426 240 g/L EC is classified as Toxicity Category III based on the calculated LD_{50} values in both sexes.

At 7000 mg/kg (males only), 4/5 animals died on day 2.

At 5000 mg/kg (males and females), 3/5 males died between days 1 and 3 and all five females died by day 2.

At 4500 mg/kg and 4200 mg/kg (females only), all five animals at each dose died on day 2.

At 4100 mg/kg (females only), 3/5 animals died on day 2.

At 4000 mg/kg (males and females), 2/5 males and 1/5 females died on day 2.

The onset of clinical signs began approximately one hour after dosing and continued to be observed until day 8 of the study when surviving rats returned to normal. All survivors gained weight. The most significant clinical signs observed during the study included mydriasis, loss of righting reflex, cyanosis, ataxia and dyspnea. Additional signs noted included pink staining of cage pan liner, bloody oral discharge, abdominogenital staining, abdominal gripping, chromorhinorrhea, decreased feces, dehydration, decreased locomotion, lacrimation, diarrhea, oral discharge, recumbency and prostration. At necropsy, no gross lesions were noted in any of the animals.

This study is classified as Acceptable (870.1100) and satisfies the guideline requirement for an acute oral study in the rat.

COMPLIANCE: Signed and dated GLP, Quality Assurance and Data Confidentiality statements were provided.

DATA REVIEW FOR ACUTE DERMAL TOXICITY TESTING (870.1200)

Product Manager: 23 **Reviewer:** Eugenia McAndrew

CITATION: Freeman, C. (1994) F8426 240 g/L EC; acute dermal toxicity in rats. FMC Corporation Toxicology Laboratory, Princeton, New Jersey. Laboratory Report Number A94-4060. December 1, 1994. MRID 453143-03. Unpublished.

SPONSOR: FMC Corporation Agricultural Products Group, P.O. Box 8, Princeton, NJ 08543

EXECUTIVE SUMMARY: In an acute dermal toxicity study, five young adult Sprague-Dawley CD rats/sex (Weight: 259-279 g males; 245-259 g females; Source: Charles River Laboratories) were dermally exposed to a single application of undiluted F8426 240 g/L EC (23.2% purity; Reference No. PL94-471; clear liquid) at 4000 mg/kg for 24 hours. Animals were observed for clinical signs of toxicity and mortality at 0.5, 1, 2, 3, 4 and 6 hours after application and once daily for 14 days.

Dermal LD_{50} Males = > 4000 mg/kg (observed); Dermal LD_{50} Females = > 4000 mg/kg (observed)

F8426 240 g/L EC is classified as Toxicity Category III based on the observed LD_{50} values in both sexes.

All animals survived and appeared healthy during the 14-day study. Local irritation included erythema at the dose sites of two females on day 1 and desquamation at the dose sites of four rats on days 3 to 7. No effect on bodyweight was observed and necropsy after 14 days revealed no gross abnormalities.

This study is classified as Acceptable (870.1200) and satisfies the guideline requirement for an acute dermal study in the rat.

Deviation: The guidelines state that the test substance should be applied to approximately 10% of the body surface area. The study report does not specify the percentage of body surface covered with the test substance.

COMPLIANCE: Signed and dated GLP, Quality Assurance and Data Confidentiality statements were provided.

DATA REVIEW FOR ACUTE INHALATION TOXICITY TESTING (870.1300)

Product Manager: 23 **Reviewer:** Eugenia McAndrew

CITATION: Signorin, J. (1994) F8426 240 g/L EC; acute inhalation toxicity in rats. FMC Corporation Toxicology Laboratory, Princeton, New Jersey. Laboratory Report Number A94-4064. December 22, 1994. MRID 453143-04. Unpublished.

SPONSOR: FMC Corporation Agricultural Products Group, P.O. Box 8, Princeton, NJ 08543

EXECUTIVE SUMMARY: In an acute inhalation toxicity study, five young adult Sprague-Dawley (Crl:CDBR VAF Plus) rats/sex (Weight: 240-271 g males; 204-227 g females; Source: Charles River Laboratories, Kingston, NY) were exposed by nose only inhalation to F8426 240 g/L EC (23.2% purity; Reference No. PL94-471; clear liquid) at 6.31 mg/L for 4 hours. All animals were observed for clinical signs of toxicity and mortality during the exposure and for 14 days post exposure.

Inhalation LC_{50} Males = > 6.31 mg/L (observed); Inhalation LC_{50} Females = > 6.31 mg/L (observed)

F8426 240 g/L EC is classified as Toxicity Category IV based on the observed LC_{50} values in both sexes.

All animals survived the 14-day study. Clinical signs were observed upon removal from the exposure chamber and included abdominogenital staining, alopecia, decreased feces, decreased locomotion, dyspnea, lacrimation, rales and wet material on fur. The animals recovered from these symptoms by day 5. All animals gained weight during the study except for one female which lost weight from day 7 to day 14. Necropsy after 14 days revealed no gross abnormalities. The gravimetric chamber concentration was 6.31 mg/L. The mass median aerodynamic diameter of the particles ranged from 2.83 to 3.0 µm.

This study is classified as Acceptable (870.1300) and satisfies the guideline requirement for an acute inhalation study in the rat.

COMPLIANCE: Signed and dated GLP, Quality Assurance and Data Confidentiality statements were provided.

DATA REVIEW FOR PRIMARY EYE IRRITATION TESTING (870.2400)

Product Manager: 23 **Reviewer:** Eugenia McAndrew

CITATION:. Freeman, C. (1994) F8426 240 g/L EC; primary eye irritation in rabbits. FMC Corporation Toxicology Laboratory, Princeton, New Jersey. Laboratory Report Number A94-4062. December 7, 1994. MRID 453143-05. Unpublished.

SPONSOR: FMC Corporation Agricultural Products Group, P.O. Box 8, Princeton, NJ 08543

EXECUTIVE SUMMARY: In a primary eye irritation study, 0.10 mL of undiluted F8426 240 g/L EC (23.2% purity; Reference No. PL94-471; clear liquid) was placed into the conjunctival sac of the right eye of six young adult New Zealand White rabbits (5 male and 1 female; Source: HRP, Inc., Denver, PA). All animals were observed for ocular irritation at 1, 24, 48 and 72 hours and on day 7 post-installation. (Prior to dosing, 0.5% Tetracaine was instilled into both eyes of each rabbit to minimize the pain.)

F8426 240 g/L EC is classified as Toxicity Category III based on the resolution of the ocular irritation within 7 days.

Conjunctivitis (redness, chemosis and discharge) was present in all eyes at 24 hours after installation resolving by 72 hours. At 24 and 48 hours, all eyes exhibited corneal opacity. One eye still showed corneal opacity at 72 hours. All eyes were free of irritation by day 7.

This study is classified as Acceptable (870.2400) and satisfies the guideline requirement for a primary eye irritation study in the rabbit.

COMPLIANCE: Signed and dated GLP, Quality Assurance and Data Confidentiality statements were provided.

DATA REVIEW FOR PRIMARY DERMAL IRRITATION TESTING (870.2500)

Product Manager: 23 **Reviewer:** Eugenia McAndrew

CITATION: Freeman, C. (1994) F8426 240 g/L EC; primary skin irritation in rabbits. FMC Corporation Toxicology Laboratory, Princeton, New Jersey. Laboratory Report Number A94-4061. December 7, 1994. MRID 453143-06. Unpublished.

SPONSOR: FMC Corporation Agricultural Products Group, P.O. Box 8, Princeton, NJ 08543

EXECUTIVE SUMMARY: In a primary skin irritation study, six young adult New Zealand White rabbits (3 male and 3 female; Source: HRP, Inc., Denver, PA) were dermally exposed to 0.5 mL of undiluted F8426 240 g/L EC (23.2% purity; Reference No. PL94-471; clear liquid) for 4 hours. The test substance was applied directly to a single 6 cm^2 intact dose site on each animal. Animals were observed 1, 24, 48 and 72 hours and 7 and 14 days after patch removal.

F8426 240 g/L EC is classified as Toxicity Category IV based on the observations during this study.

Primary Dermal Irritation Index (PDII) = 1.6 Very slight erythema and edema were present at 5/6 test sites one hour after patch removal. The edema decreased in severity and was resolved by 72 hours. At 72 hours, 5/6 sites had well-defined erythema. By day 7, the erythema had resolved but slight to severe desquamation was noted at 5/6 test sites. All sites were free of dermal irritation by day 14.

This study is classified as Acceptable (870.2500) and satisfies the guideline requirement for an primary skin irritation study in the rabbit.

COMPLIANCE: Signed and dated GLP, Quality Assurance and Data Confidentiality statements were provided.

DATA REVIEW FOR DERMAL SENSITIZATION TESTING (870.2600)

Product Manager: 23 **Reviewer:** Eugenia McAndrew

CITATION: Freeman, C. (1994) F8426 240 g/L EC; skin sensitization in guinea pigs. FMC Corporation Toxicology Laboratory, Princeton, New Jersey. Laboratory Report Number A94-4063. December 27, 1994. MRID 453143-07. Unpublished.

SPONSOR: FMC Corporation Agricultural Products Group, P.O. Box 8, Princeton, NJ 08543

EXECUTIVE SUMMARY: In a dermal sensitization study conducted with undiluted F8426 240 g/L EC (23.2% purity; Reference No. PL94-471; clear liquid), 30 young adult female Hartley guinea pigs (Source: HRP, Inc., Denver, PA) were tested using methods based on those derived by Buehler. Preliminary testing was conducted to determine the correct concentrations for induction and challenge. The test substance was applied at 100% concentration for the induction and the challenge. An additional 10 females were tested with 1-Chloro-2, 4-Dinitrobenzene (DNCB) within six months of the main study to serve as positive controls.

F8426 240 g/L EC is classified as a non-sensitizer based on the results of this study.

No dermal irritation was observed at any treated site during the induction phase. No dermal irritation was observed 24 or 48 hours following a single challenge exposure with the test substance applied to either previously induced or control animals. The positive response observed in the DNCB study validates the test system used in this study.

This study is classified as Acceptable (870.2600) and satisfies the guideline requirement for an dermal sensitization study in the guinea pig.

COMPLIANCE: Signed and dated GLP, Quality Assurance and Data Confidentiality statements were provided.

ACUTE TOX ONE-LINERS

1. **DP BARCODE:** D273169
2. **PC CODE:** 128712 (carfentrazone-ethyl)
3. **CURRENT DATE:** 26/APR/2001
4. **TEST MATERIAL:** F8426 240 g/L EC (23.2% purity; Reference No. PL94-471; clear liquid)

Study/Species/Lab Study # /Date	MRID	Results	Tox. Cat.	Core Grade
Acute oral toxicity/rat FMC Corporation Toxicology Laboratory/A94-4059 12-20-94	453143-02	LD_{50} = 4490 mg/kg (males) = 4077 mg/kg (females) = 4235 mg/kg (combined)	III	A
Acute dermal toxicity/rat FMC Corporation Toxicology Laboratory/A94-4060 12-1-94	453143-03	LD_{50} > 4000 mg/kg (males females combined)	III	A
Acute inhalation toxicity/rat FMC Corporation Toxicology Laboratory/A94-4064 12-22-94	453143-04	LC_{50} > 6.31mg/L (males females combined)	IV	A
Primary eye irritation/rabbit FMC Corporation Toxicology Laboratory/A94-4062 12-7-94	453143-05	Conjunctivitis in 6/6 eyes resolving by 72 hours. Corneal opacity in 6/6 eyes at 24 and 48 hours resolving by day 7.	III	A
Primary dermal irritation/rabbit FMC Corporation Toxicology Laboratory/A94-4061 12-7-94	453143-06	PDII = 1.6 Erythema and edema at 5/6 sites at one hour. Well-defined erythema at 5/6 sites at 72 hours, edema absent. Desquamation on day 7. All irritation resolved by day 14.	IV	A
Dermal sensitization/guinea pig FMC Corporation Toxicology Laboratory/A94-4063 12-27-94	453143-07	Not a sensitizer	--	A

Core Grade Key: **A =Acceptable, S = Supplementary, U = Unacceptable, V = Self Validated**